IPRO LF Software User Manual

Lateral Flow Immunoassay for the quantitative measurement of saliva samples in combination with an IPRO LFD Reader, IPRO Lateral Flow Device (LFD) and Oral Fluid Collector (OFC).

English instruction manual.

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1 Introduction

1.1 Policy Statement

It is the policy of IPRO Interactive Ltd to improve products as new techniques and components become available. IPRO reserves the right to change specifications at any time. In an effort to produce useful and appropriate documentation, we appreciate your comments on this user manual. Please contact IPRO.

1.2 Version Management

This is the IPRO Lateral Flow Software (LF Software) User Manual for software version 1.0.10.0

1.3 Copyright

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2 General Product Description

Easy to use, comprehensive software for the Lateral Flow end user, offering:

- Control of the ESE-Quant Reader
- Multi-language User Interface
- Customising the User Interface
- Status display of important IPRO LFD Reader functions
- Archiving of data stored in the IPRO LFD Reader[1]
- Management of data stored in the IPRO LFD Reader[1]
- Administration of methods and users in the IPRO LFD Reader[1]
- Updating firmware and GUI in the IPRO LFD Reader

The Lateral Flow Software represents the further development of the well-known Lateral Flow Control and Lateral Flow Manage Software packages. The integration of several previous packages (Control, Lab, Backup and Manage) has simplified the system, needing only one program to be started. Many improvements were incorporated into this software, as well as multi-language and customisable user Interface functions.

The installation of the software is straightforward and can now be carried out on the Windows® 7 operating system.

[1] Dependent on the IPRO LFD Reader firmware version. This must be 2.12 or higher.

3 System Requirements

- Windows® XP Service Pack 1 or higher, Windows® Vista, Windows® 7
- Installed .NET Framework (V2.0) and current Windows® Installer (V3.1)
- Intel compatible PC with 1GHz processor and a minimum of 512MB RAM
- 100 MB available memory on hard disc
- CD-ROM drive
- Monitor with a minimum resolution of 1024 x 768

4 Installing the IPRO Lateral Flow Software

Insert the IPRO USB stick into your PC

From the Folder entitled **IPRO LF Software**, double click the **setup** application.

After successfully installing the software, the IPRO LF Software icon will appear on your desktop.

4.1 Installing the Driver from the USB stick

For the IPRO LF Software to communicate effectively with your IPRO LFD Reader, it is essential to download the appropriate driver. The process for this varies according to the version of Windows® that your PC is running. This is detailed in section 6 of this manual

4.2 Connecting your IPRO LFD Reader

Connect the mains supply to the IPRO LFD Reader.

Connect the IPRO LFD Reader to your PC via the USB cable supplied with the Reader. (Remember to have first installed the Driver).

Press the Enter key (middle button) on the IPRO LFD Reader for three seconds.

Wait for completion of automatic self-test and self-calibration.

4.3 Starting the IPRO LF Software

To start the IPRO LF Software, double click on the IPRO LF Software icon. When the software is running, click on the menu item '**File'** then on '**Connect'** from the pull down menu.

5 Overview of IPRO LF Software

The IPRO LF Software includes the following functions:

Lateral Flow Single Measurement

Used to carry out measurements on the IPRO LFD Reader. Intended for use by end users without laboratory experience.

Lateral Flow Lab

Used to add sample preparation information to results data. Intended for use by the end user with laboratory experience.

Lateral Flow Device Results

Used for backup and archiving of results. Intended for use by the end user and test kit supplier.

Lateral Flow Manage

Used for administration of the IPRO LFD Reader. Intended for use by an administrator.

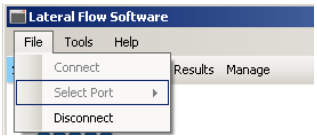
All of the above functions are accessed via the IPRO LF Software. The IPRO LFD Reader must be connected to access most of the functions. Double click on the IPRO LF Software icon to start the software.

If your Driver is installed correctly the Display on the IPRO LFD Reader should now read:

Remote

5.1 Menu Bar

The menu bar contains three menu groups, ‘File’, ‘Tools’ and ‘Help’. These function as follows:

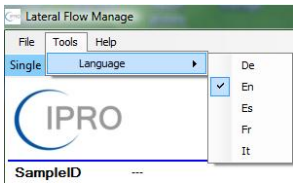


5.1.1 File

Connect: Establish connection with the IPRO LFD Reader. On starting the software, connection is automatically established if the IPRO LFD Reader is connected to the PC and switched on.

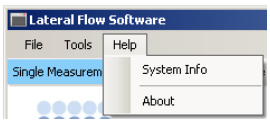
Select Port: If the IPRO LFD Reader is connected after starting the software, it may be necessary to select the relevant COM port for manual connection.

Disconnect: Close the connection between the IPRO LFD Reader and the PC.



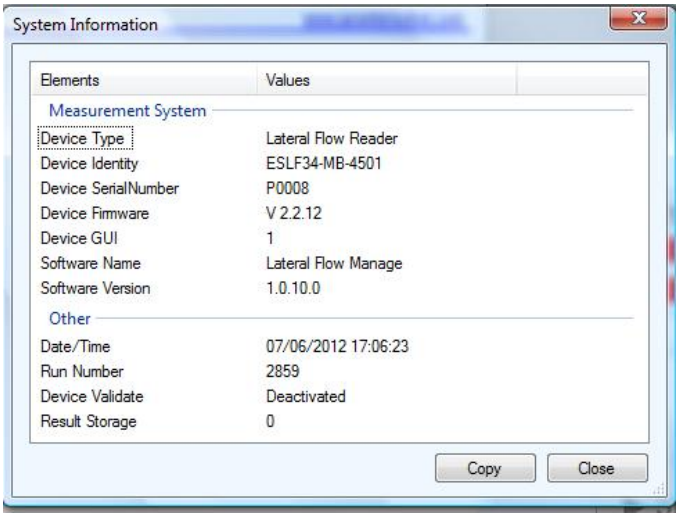
5.1.2 Tools

Language: This is used to select the language setting for the entire user interface of the Lateral Flow Software. Current offerings are German, English, Spanish, French and Italian.



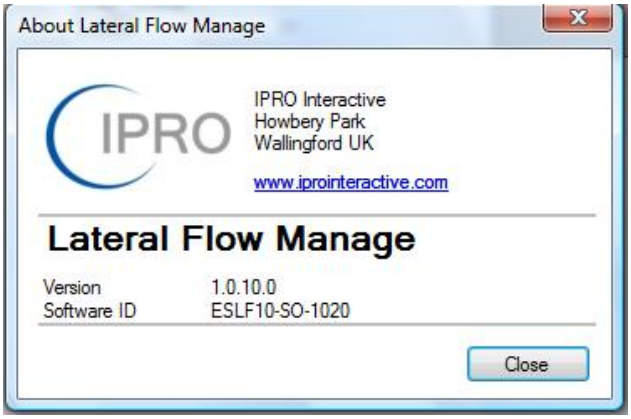
5.1.3 Help

System Info: Displays ESE-Quant Reader information as shown below:



Note that clicking on 'Copy' copies the information to the Windows Clipboard.

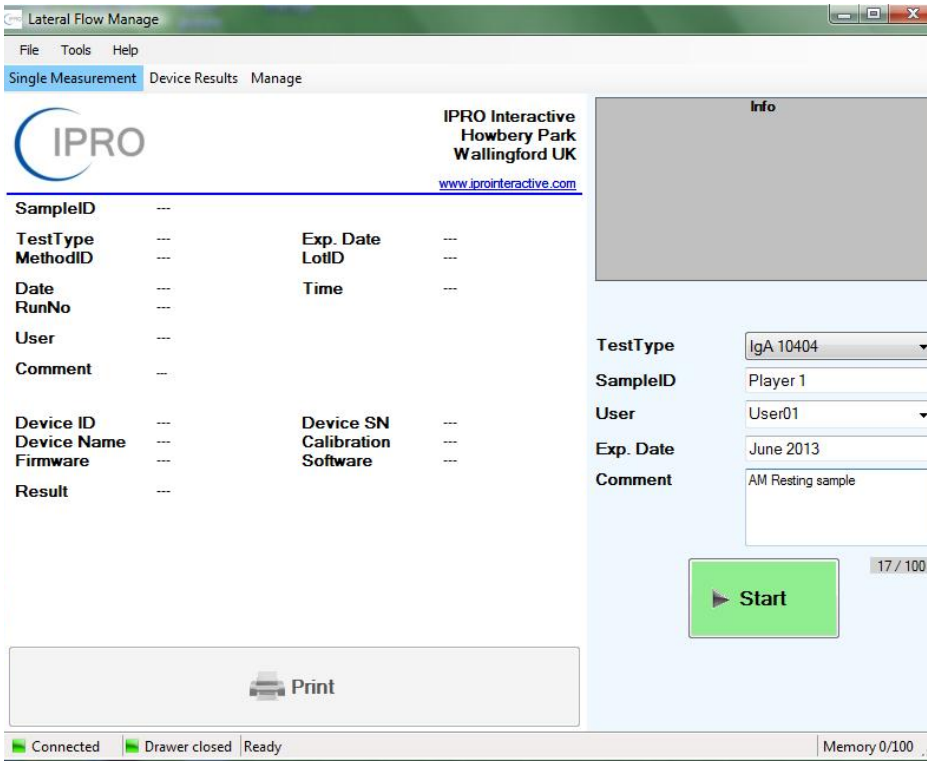
About: Displays Software ID and Version as shown below:



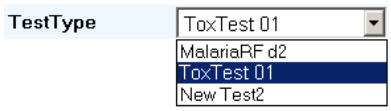
5.2 Lateral Flow Single Measurement

This function is used to carry out measurements on the IPRO LFD Reader. Intended for use by end users without laboratory experience. This function allows the user to select a method stored on the IPRO LFD Reader and run it. Additionally, the user can select or enter a sample ID, user ID, expiry date information and comment.

Click on the tab 'Single Measurement'. The software appears as shown below:

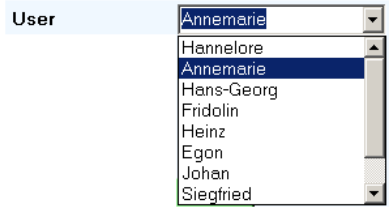


Note that the status bar at the bottom of the screen shows 'Connected', 'Drawer Closed' and 'Ready': The system is ready for measurement. Also displayed in the status bar is the memory status of the ESE-Quant Reader: This shows that 0 tests are stored: 100 test result sets can be stored in total.

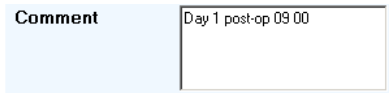


This drop-down menu displays the methods which are stored on the IPRO LFD Reader. Select the method to be run.

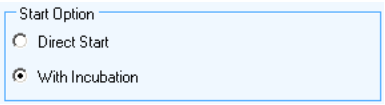
This is a user-editable textbox, which is used to add a sample ID to the results.



This drop-down menu displays the users who are registered on the IPRO LFD Reader. Select the relevant username.



This is a user-editable textbox which is used to add sample comments to the results.

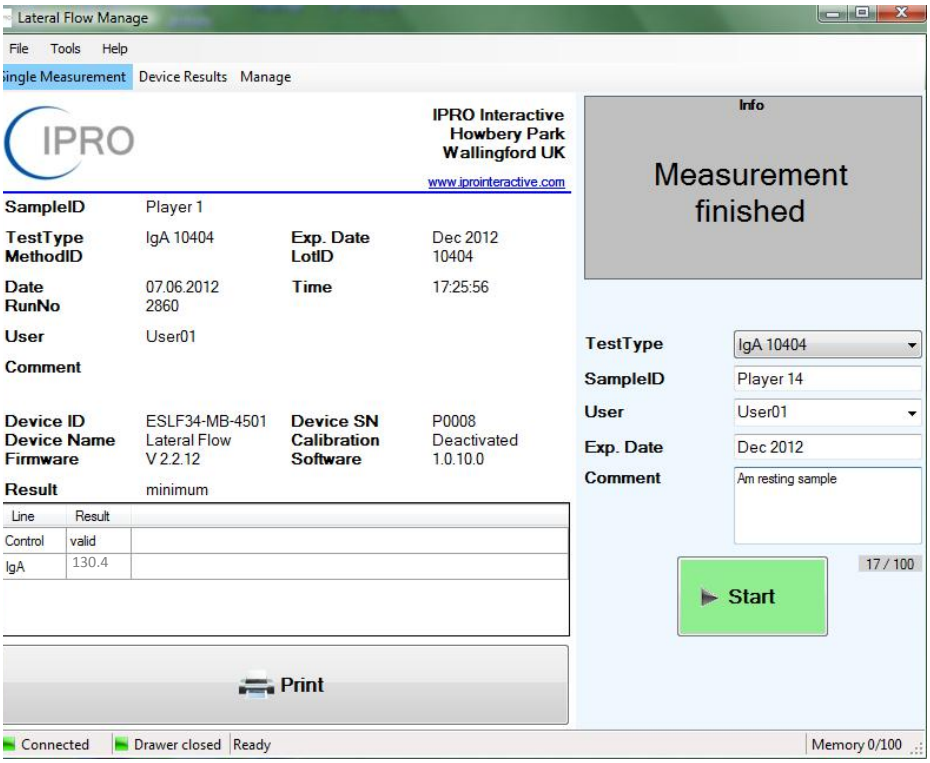


This option allows the user to start measurement using the incubation time stored in the method in the IPRO LFD Reader, or to bypass the incubation time and start measurement immediately on clicking the 'Start' button.

Start the measurement on the IPRO LFD Reader. During measurement, the 'Start' button's function changes to 'Stop'. **Note that the 'Start' button is enabled only when all of the user entry items (shown above) are OK**.

5.2.1 Single Measurement Result Display

On completion of the measurement, results are displayed in the Single Measurement dialog as shown below:

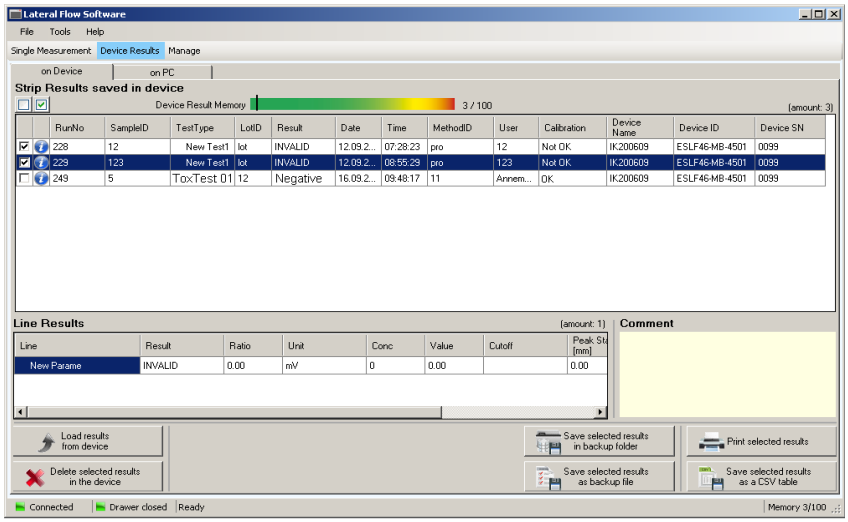


Clicking on the 'Print' button prints the results to the default Windows® printer.

5.3 Lateral Flow Device Results

The Device Results tab is used to view and manage test results stored on either the IPRO LFD Reader or on the PC. The tab has two sub-tabs, 'on Device' and 'on PC' respectively.

5.3.1 Lateral Flow Device Results/on Device

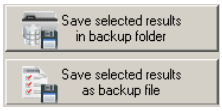

Lateral Flow Software
File Tools Help
Single Measurement Device Results Manage
on Device on PC
Strip Results saved in device
Device Result Memory 3 / 100
(amount: 3)
RunNo SampleID TestType LotID Result Date Time MethodID User Calibration Device Name Device ID Device SN
228 12 New Test1 lot INVALID 12.09.2... 07:28:23 pro 12 Not OK IK200609 ESLF46-MB-4501 0099
229 123 New Test1 lot INVALID 12.09.2... 08:55:29 pro 123 Not OK IK200609 ESLF46-MB-4501 0099
249 5 ToxTest 01 12 Negative 16.09.2... 09:48:17 11 Annem... OK IK200609 ESLF46-MB-4501 0099
Line Results
(amount: 1)
Comment
Line Result Ratio Unit Conc Value Cutoff Peak St [mm]
New Parame INVALID 0.00 mV 0 0.00 0.00
Load results from device
Delete selected results in the device
Save selected results in backup folder
Save selected results as backup file
Print selected results
Save selected results as a CSV table
Connected
Drawer closed
Ready
Memory 3/100

Unselect all results in the table

Select all results in the table

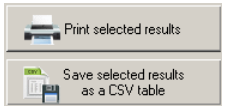
Load all results from the IPRO LFD Reader

Delete selected results from the IPRO LFD Reader



Save selected results in the backup folder*

Save selected results as a backup file



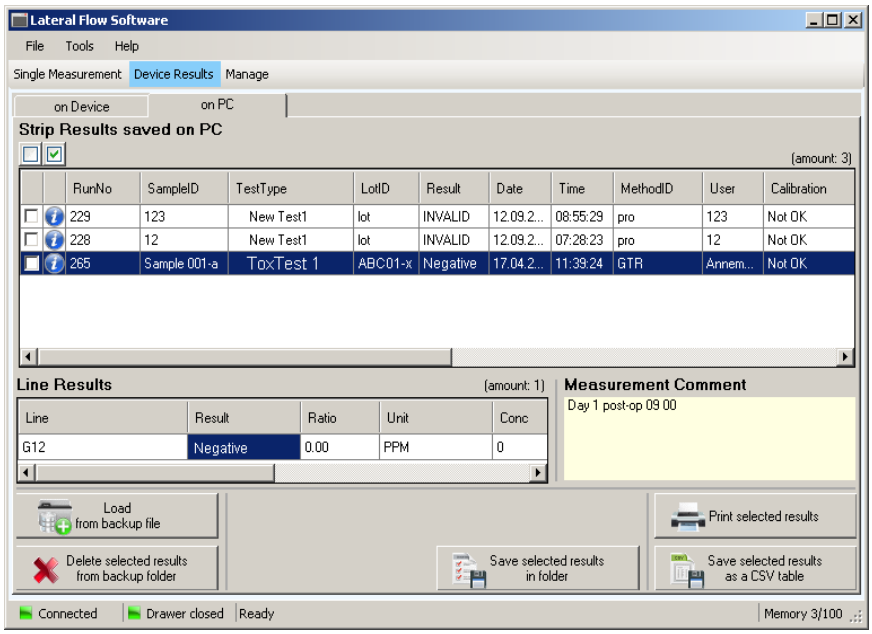
Print selected results to the default Windows® printer

Save selected results as CSV files

*C:\Documents and Settings\All Users\Application Data\LFSuite\Backup

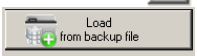
5.3.2 Lateral Flow Device Results/on PC

This tab displays the results which are stored in the Backup Folder (see below):

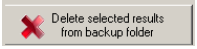


Unselect all results in the table

Select all results in the table



Load results from file



Delete selected results from the backup folder*

Save selected results to a different folder

Print selected results to the default Windows® printer

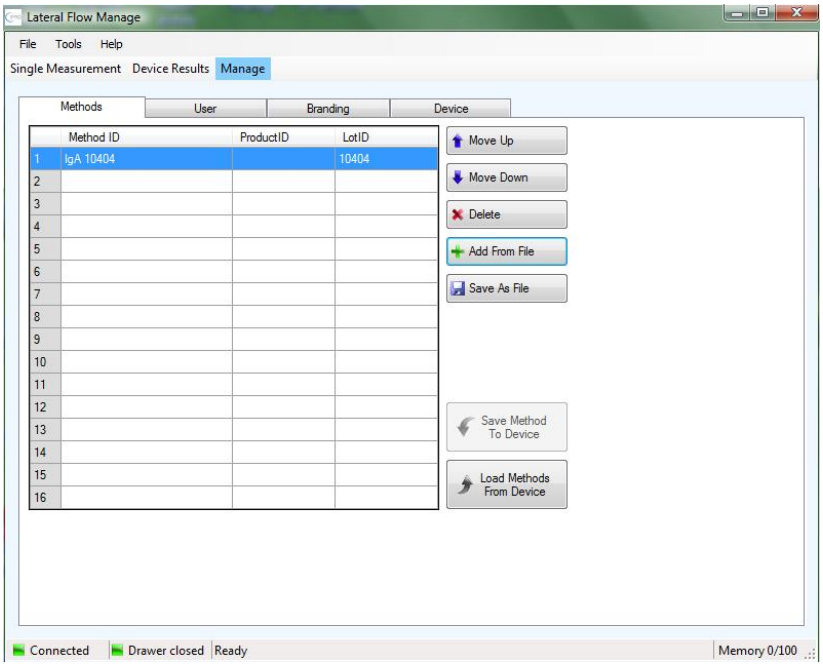
Save selected results as CSV files

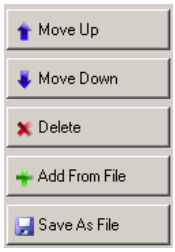
*C:\Documents and Settings\All Users\Application Data\LFSuite\Backup

5.4 Lateral Flow Manage

Used for administration of the IPRO LFD Reader. Methods, User IDs and Branding Information can be transferred to and from the IPRO LFD Reader. Additionally, the Graphical User Interface (GUI) or firmware can be updated, and the IPRO LFD Reader's date and time can be set.

5.4.1 Manage Methods





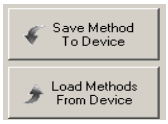
Move the selected method upwards in the list

Move the selected method downwards in the list

Delete the selected method from the list

Add a method to the list from a file

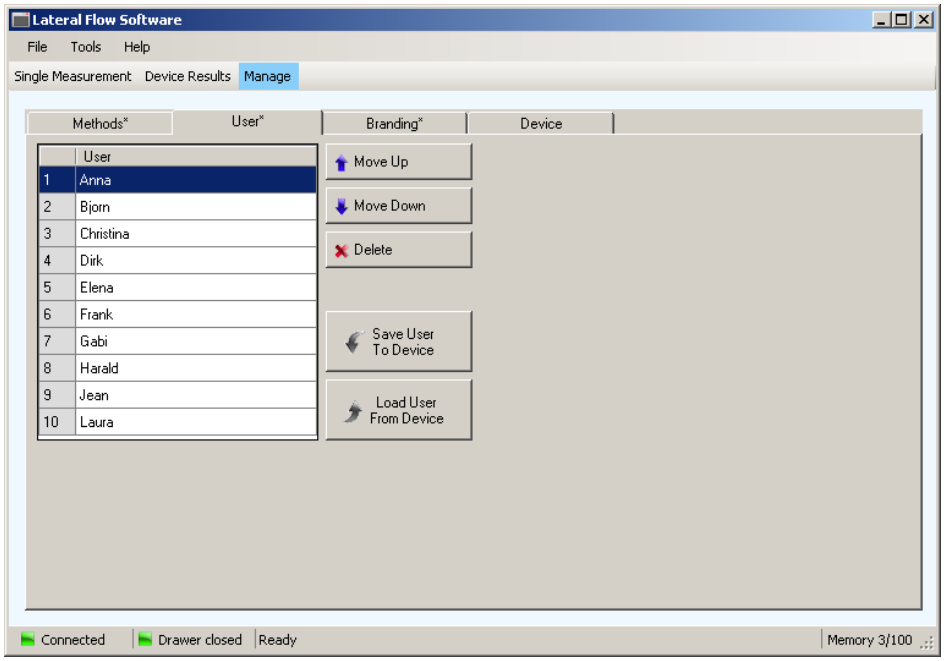
Save a method in the list as a file

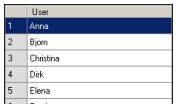


Save the method list to the IPRO LFD Reader, over-writing all current stored methods.

Load the methods currently stored on the IPRO LFD Reader.

5.4.2 Manage User ID list





User ID table. User editable, each User ID can hold up to 10 characters.

Move the selected User ID upwards in the list

Move the selected User ID downwards in the list

Delete the selected User ID from the list

Save the User ID list to the IPRO LFD Reader, over-writing the current User ID list.

Load the User IDs stored in the IPRO LFD Reader.

5.4.3 Manage Branding Information & Manage Device

WARNING: **These aspects should only be entered and edited with the expressed permission of IPRO Interactive. Any changes caused by user entry into these tabs could affect the warranty of the device.**

6 USB Driver Installation

The exact sequence and appearance of the installation procedure depends on the version of Microsoft Windows®.

The operating system must provide full USB support.

Ensure that you have sufficient rights for the installation of the drivers (e.g. administrator rights).

If problems should arise during installation, you can de-install the current USB device driver using the Windows® control panel.

Installation can be re-started by re-connecting the USB connector.

6.1 USB Device Driver installation for Windows® XP.

First Steps

Insert the supplied IPRO Interactive memory stick into a free USB Port.

Copy the folder ‘Driver’ to the computer’s desktop

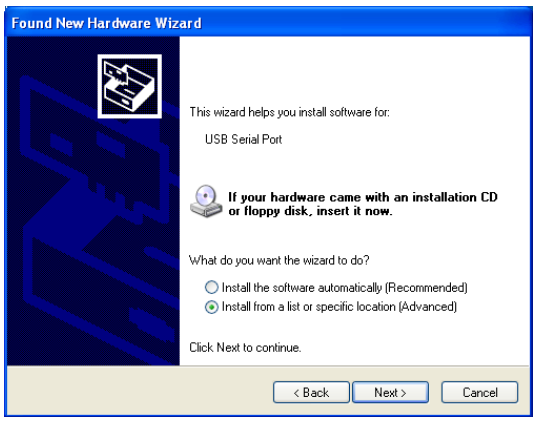
Connect the IPRO LFD Reader with the supplied USB cable.

Windows® automatically detects the new USB device. The New Hardware assistant appears.

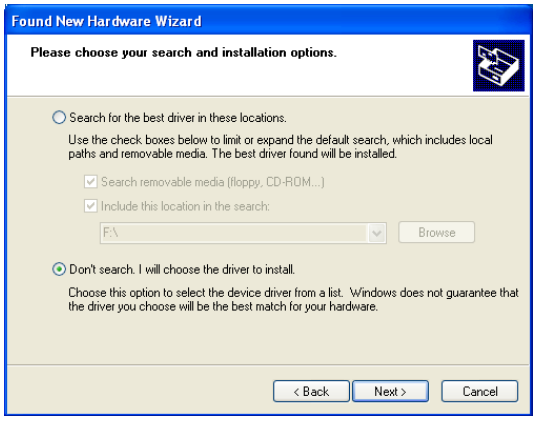
Found New Hardware Wizard
Welcome to the Found New Hardware Wizard
Windows will search for current and updated software by looking on your computer, on the hardware installation CD, or on the Windows Update Web site (with your permission).
Read our privacy policy
Can Windows connect to Windows Update to search for software?
Yes, this time only
Yes, now and every time I connect a device
No, not this time
Click Next to continue.
< Back
Next >
Cancel

Installation of the USB device driver

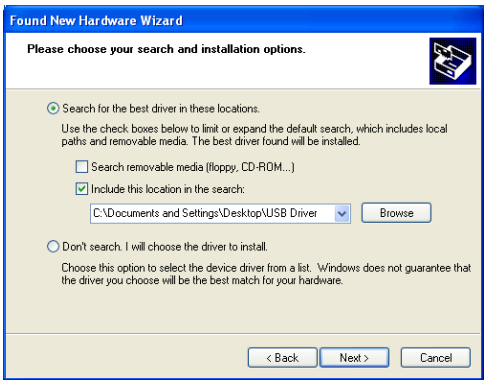
Select the last button 'No, not this time' to ignore a connection with Windows Update and press 'Next'.


Found New Hardware Wizard
This wizard helps you install software for:
USB Serial Port
If your hardware came with an installation CD or floppy disk, insert it now.
What do you want the wizard to do?
Install the software automatically (Recommended)
Install from a list or specific location (Advanced)
Click Next to continue.
< Back
Next >
Cancel

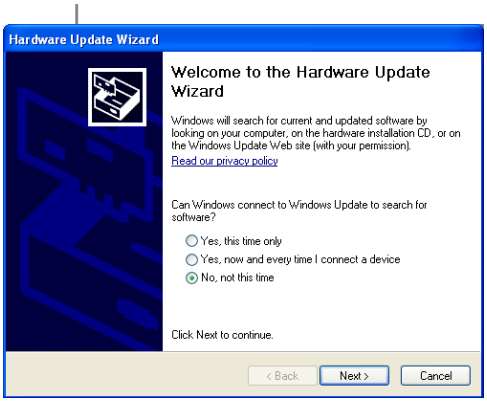
Select the option 'Install from a list or specific location' and press 'Next'.


Found New Hardware Wizard
Please choose your search and installation options.
Search for the best driver in these locations.
Use the check boxes below to limit or expand the default search, which includes local paths and removable media. The best driver found will be installed.
Search removable media (floppy, CD-ROM...)
Include this location in the search:
F:\
Browse
Don't search. I will choose the driver to install.
Choose this option to select the device driver from a list. Windows does not guarantee that the driver you choose will be the best match for your hardware.
< Back
Next >
Cancel

Select the option 'Don't search', I will choose the driver to install' and press 'Next'.

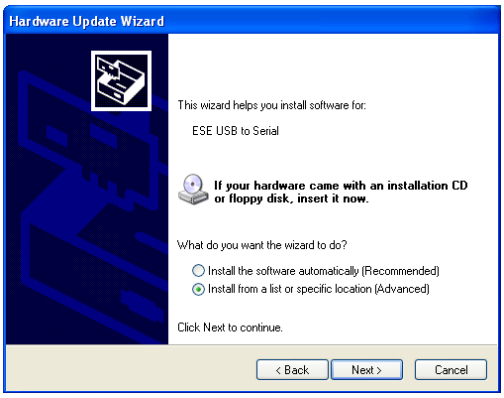

Found New Hardware Wizard
Please choose your search and installation options.
Search for the best driver in these locations.
Use the check boxes below to limit or expand the default search, which includes local paths and removable media. The best driver found will be installed.
Search removable media (floppy, CD-ROM...)
Include this location in the search:
C:\Documents and Settings\Desktop\USB Driver
Browse
Don't search. I will choose the driver to install.
Choose this option to select the device driver from a list. Windows does not guarantee that the driver you choose will be the best match for your hardware.
< Back
Next >
Cancel

Press the 'Browse' button to locate the USB Driver folder on the desktop and press 'Next'.

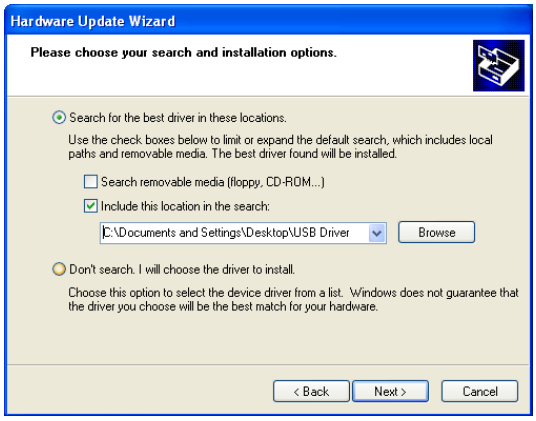

Hardware Update Wizard
Welcome to the Hardware Update Wizard
Windows will search for current and updated software by looking on your computer, on the hardware installation CD, or on the Windows Update Web site (with your permission).
Read our privacy policy
Can Windows connect to Windows Update to search for software?
Yes, this time only
Yes, now and every time I connect a device
No, not this time
Click Next to continue.
< Back
Next >
Cancel

Installation of the USB virtual COM Port

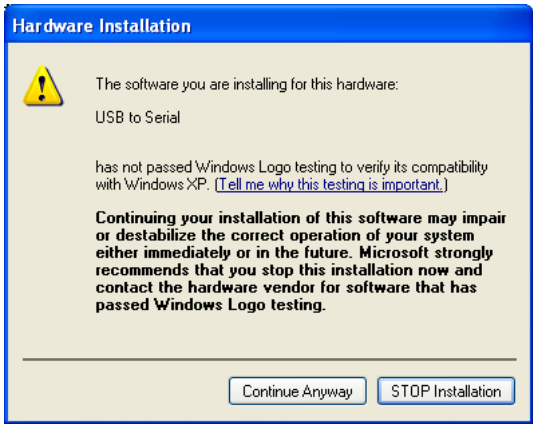
Immediately after the installation of the USB device driver the installation of the virtual COM Port will be initiated. Select the last button 'No, not this time' and press 'Next'.


Hardware Update Wizard
This wizard helps you install software for:
ESE USB to Serial
If your hardware came with an installation CD or floppy disk, insert it now.
What do you want the wizard to do?
Install the software automatically (Recommended)
Install from a list or specific location (Advanced)
Click Next to continue.
< Back
Next >
Cancel

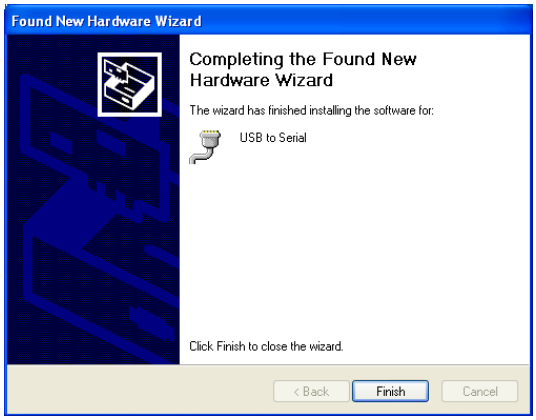
Select the option 'Install from a list or specific location' and press 'Next'.


Hardware Update Wizard
Please choose your search and installation options.
Search for the best driver in these locations.
Use the check boxes below to limit or expand the default search, which includes local paths and removable media. The best driver found will be installed.
Search removable media (floppy, CD-ROM...)
Include this location in the search:
C:\Documents and Settings\Desktop\USB Driver
Browse
Don't search. I will choose the driver to install.
Choose this option to select the device driver from a list. Windows does not guarantee that the driver you choose will be the best match for your hardware.
< Back
Next >
Cancel

Click the 'Browse' button to locate the USB Driver folder on the desktop and press 'Next'.


Hardware Installation
The software you are installing for this hardware:
USB to Serial
has not passed Windows Logo testing to verify its compatibility with Windows XP. (Tell me why this testing is important.)
Continuing your installation of this software may impair or destabilize the correct operation of your system either immediately or in the future. Microsoft strongly recommends that you stop this installation now and contact the hardware vendor for software that has passed Windows Logo testing.
Continue Anyway
STOP Installation

Confirm the next screen by pressing the button 'Continue Anyway'.



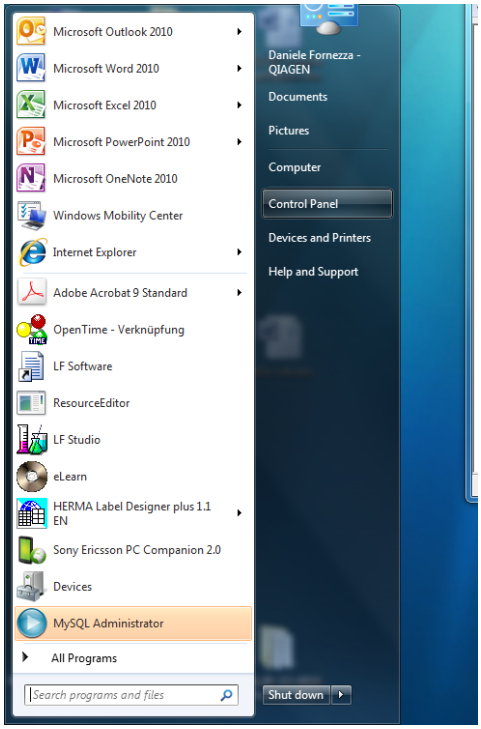
On completion of the installation process, press 'Finish'

6.2 USB Device Driver installation for Windows®7

Overview

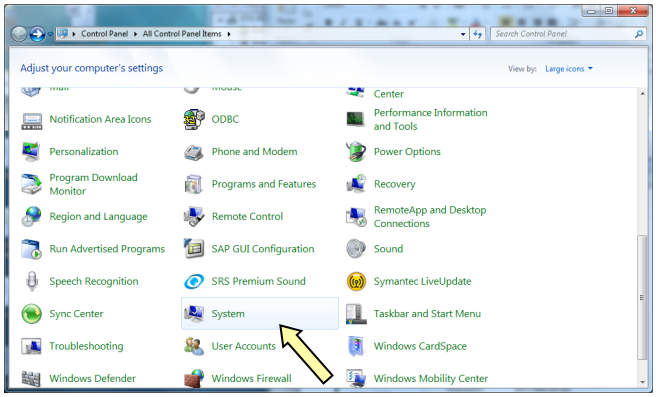
In some cases, the USB Device Drivers for the IPRO LFD Reader could have been wrongly installed by the automatic installation procedure of the operating system during the first connection of the device to the PC.

Please follow these instructions to remove the previously installed drivers and install the drivers provided by IPRO Interactive.

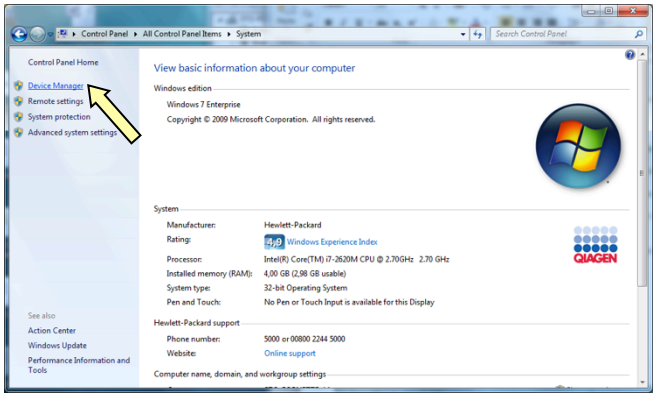


Connect the IPRO LFD Reader to the PC.

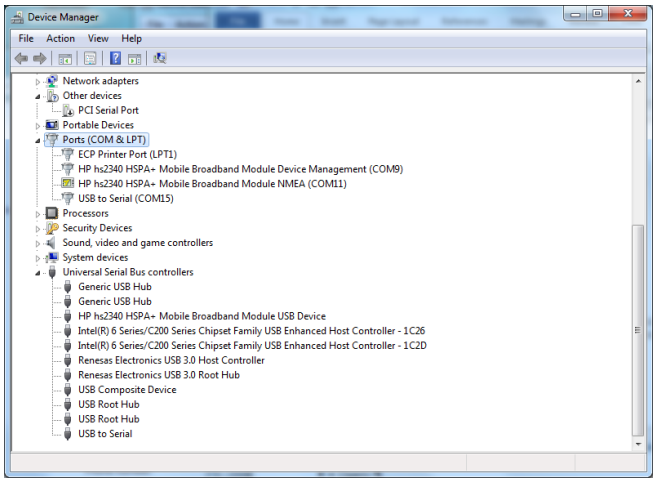
Open the Control Panel from the start menu as shown left.



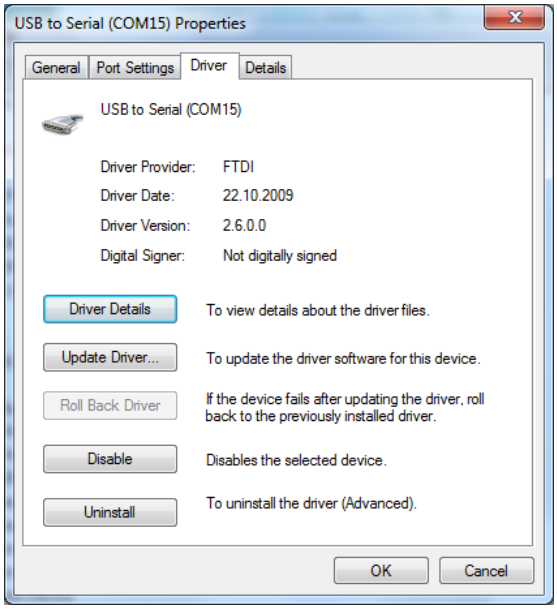
Open 'System' as shown left.


Control Panel ▸ All Control Panel Items ▸ System
Search Control Panel
Control Panel Home
Device Manager
Remote settings
System protection
Advanced system settings
View basic information about your computer
Windows edition
Windows 7 Enterprise
Copyright © 2009 Microsoft Corporation. All rights reserved.
System
Manufacturer: Hewlett-Packard
Rating: Windows Experience Index
Processor: Intel(R) Core(TM) i7-2620M CPU @ 2.70GHz 2.70 GHz
Installed memory (RAM): 4,00 GB (2,98 GB usable)
System type: 32-bit Operating System
Pen and Touch: No Pen or Touch Input is available for this Display
Hewlett-Packard support
Phone number: 5000 or 00800 2244 5000
Website: Online support
Computer name, domain, and workgroup settings
See also
Action Center
Windows Update
Performance Information and Tools
QIAGEN

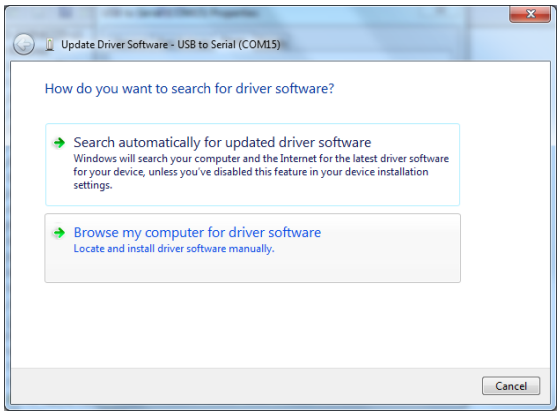
Open 'Device Manager' as shown left.


Device Manager
File Action View Help
Network adapters
Other devices
PCI Serial Port
Portable Devices
Ports (COM & LPT)
ECP Printer Port (LPT1)
HP hs2340 HSPA+ Mobile Broadband Module Device Management (COM9)
HP hs2340 HSPA+ Mobile Broadband Module NMEA (COM11)
USB to Serial (COM15)
Processors
Security Devices
Sound, video and game controllers
System devices
Universal Serial Bus controllers
Generic USB Hub
Generic USB Hub
HP hs2340 HSPA+ Mobile Broadband Module USB Device
Intel(R) 6 Series/C200 Series Chipset Family USB Enhanced Host Controller - 1C26
Intel(R) 6 Series/C200 Series Chipset Family USB Enhanced Host Controller - 1C2D
Renesas Electronics USB 3.0 Host Controller
Renesas Electronics USB 3.0 Root Hub
USB Composite Device
USB Root Hub
USB Root Hub
USB to Serial

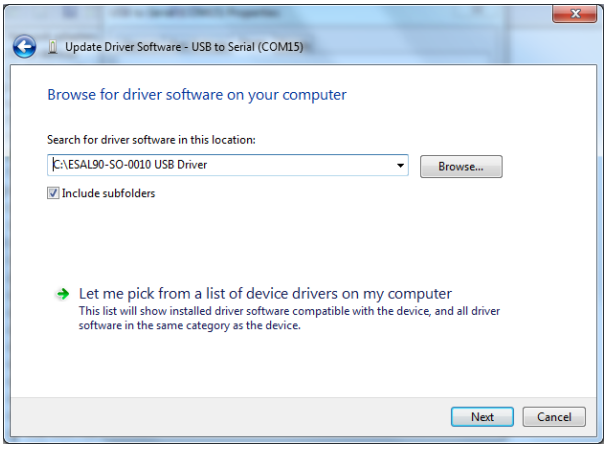
in the 'Ports (COM and LPT)' section, click on the item 'USB to Serial' (note that this name might vary slightly)



Click on 'Disable', then click on 'Update Driver…'


Update Driver Software - USB to Serial (COM15)
How do you want to search for driver software?
Search automatically for updated driver software
Windows will search your computer and the Internet for the latest driver software for your device, unless you've disabled this feature in your device installation settings.
Browse my computer for driver software
Locate and install driver software manually.
Cancel

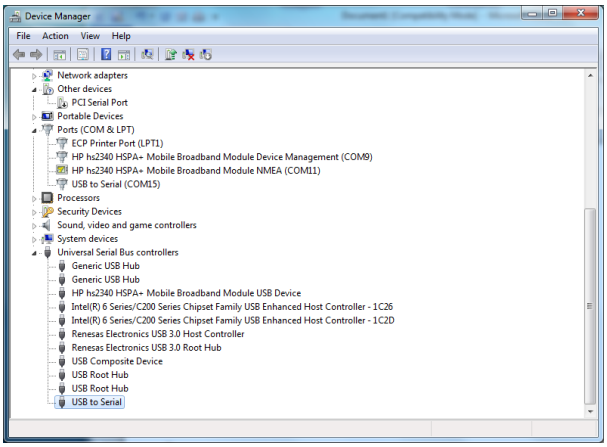
Click on 'Browse my computer for driver software'


Update Driver Software - USB to Serial (COM15)
Browse for driver software on your computer
Search for driver software in this location:
C:\ESAL90-SO-0010 USB Driver
Browse...
Include subfolders
Let me pick from a list of device drivers on my computer
This list will show installed driver software compatible with the device, and all driver software in the same category as the device.
Next
Cancel

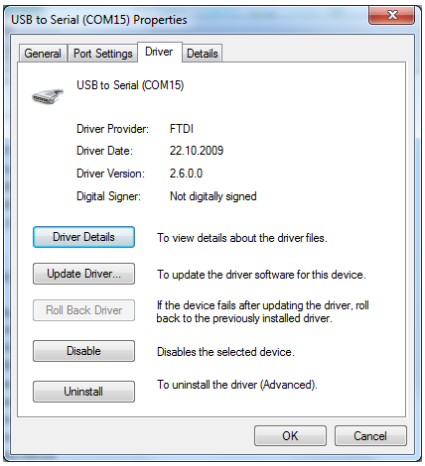
Click on the 'Browse' button to locate the USB Driver using a file explorer.

Click on 'Next'.

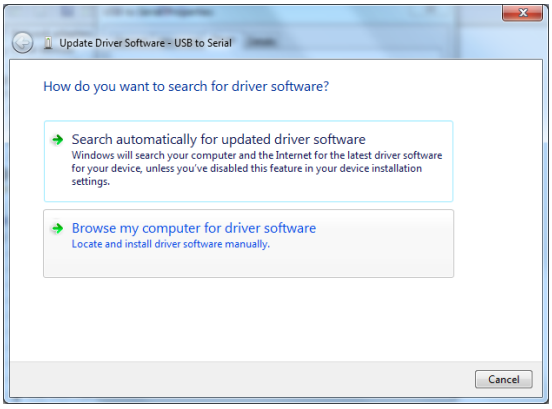
When the driver installation confirmation window appears, click on 'Close'.


Device Manager
File Action View Help
Network adapters
Other devices
PCI Serial Port
Portable Devices
Ports (COM & LPT)
ECP Printer Port (LPT1)
HP hs2340 HSPA+ Mobile Broadband Module Device Management (COM9)
HP hs2340 HSPA+ Mobile Broadband Module NMEA (COM11)
USB to Serial (COM15)
Processors
Security Devices
Sound, video and game controllers
System devices
Universal Serial Bus controllers
Generic USB Hub
Generic USB Hub
HP hs2340 HSPA+ Mobile Broadband Module USB Device
Intel(R) 6 Series/C200 Series Chipset Family USB Enhanced Host Controller - 1C26
Intel(R) 6 Series/C200 Series Chipset Family USB Enhanced Host Controller - 1C2D
Renesas Electronics USB 3.0 Host Controller
Renesas Electronics USB 3.0 Root Hub
USB Composite Device
USB Root Hub
USB Root Hub
USB to Serial

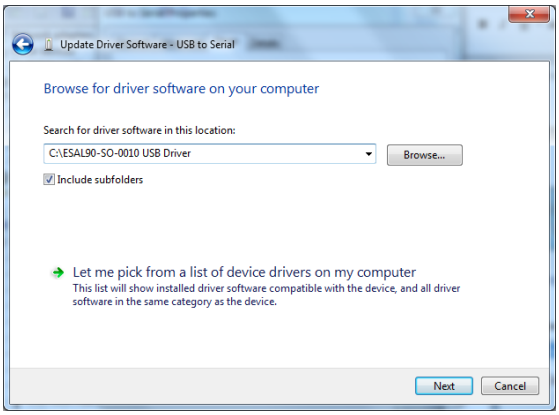
In the 'Universal Serial Bus Converters' section of Device Manager, click on the item 'USB to Serial' (note that this name might vary slightly)



Click on 'Disable', then click on 'Update Driver'


Update Driver Software - USB to Serial
How do you want to search for driver software?
Search automatically for updated driver software
Windows will search your computer and the Internet for the latest driver software for your device, unless you've disabled this feature in your device installation settings.
Browse my computer for driver software
Locate and install driver software manually.
Cancel

Click on 'Browse my computer for driver software'


Update Driver Software - USB to Serial
Browse for driver software on your computer
Search for driver software in this location:
C:\ESAL90-SO-0010 USB Driver
Browse...
Include subfolders
Let me pick from a list of device drivers on my computer
This list will show installed driver software compatible with the device, and all driver software in the same category as the device.
Next
Cancel

Click on the 'Browse' button to locate the USB Driver using a file explorer

Click on 'Next'

When the driver installation confirmation window appears, click on 'Close'

Disconnect the IPRO LFD Reader from your PC, wait 5 seconds and re-connect it to the PC.

The IPRO LFD Reader should now be ready to be controlled by the IPRO LF Software.